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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,535	08/20/2008	Toshiharu Takayama	8957-000007/US/NP	9968
27572	7590	07/21/2009	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			GOODWIN, DAVID J	
P.O. BOX 828			ART UNIT	
BLOOMFIELD HILLS, MI 48303			PAPER NUMBER	
			2818	
			MAIL DATE	
			DELIVERY MODE	
			07/21/2009	
			PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,535	<b>Applicant(s)</b> TAKAYAMA ET AL.	
	<b>Examiner</b> DAVID GOODWIN	<b>Art Unit</b> 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/19/06 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/19/06</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because in figures 3e, 3f, 4e, and 4f it is impossible to determine what the reference numerals are referring to.
2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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2. Claims 1 through 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 1 recites the limitation "the electronic component can stand alone while the conductive protrusion contacts with a flat if the conductive protrusion is fixedly bonded" in lines 13 and 14. The conditional and alternative nature of this statement renders the claim ambiguous as it unclear whether the limitation is required.

4. Claim 1 recites the limitation "a pair of electrodes" in line 6, and "the electrodes are partially exposed as lands" in line 9. The claim goes on to state "at least three of said lands" in line 12. However, a partially exposed pair of electrodes indicates that there are a pair (2) of lands which makes it unclear how at least three of said lands could be larger because three is greater than two. Further, the antecedent basis for the presence of at least three lands is unclear.

5. Claim 1 recites the limitation "the electrodes" in line 8. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 1 recites the limitation "the larger-area lands" in line 15. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 1 recites the limitation "the conductive protrusions" in line 16. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 2 recites the limitation "the larger-area lands" in 2. There is insufficient antecedent basis for this limitation in the claim.

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9. Claim 5 recites the limitation "the electrodes" in line 3. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 5 recites the limitation "the electrode" in line 7. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 5 recites the limitation "said electrode" in line 8. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 5 recites the limitation "the restive element" in line 4. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 8 recites the limitation "the tetragonal substrate" in line 4. There is insufficient antecedent basis for this limitation in the claim.

14. Claim 14 contains the trademark/trade name Metal Graze ®. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name.

15. Claims 1 through 14 contain several other errors and should be rewritten to be in compliance with 35 U.S.C. 112, second paragraph.

***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1 through 10 and 13 through 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiyama (US 6107685).

18. Regarding claim 1.

19. Nishiyama teaches an electronic component including on one surface of a substrate (7), a plurality of circuit elements and external terminal for the circuit elements each of the external terminals consisting of conductive protrusions. Each of the circuit elements includes a pair of electrodes (6a) and a resistive element (5) contacting with the pair of electrodes (6a). Each circuit element is covered by an overcoat (13) while the electrodes (6a) are partially exposed as lands. Said conductive protrusions (6, 10) includes a fixedly bonding member (6). Said conductive protrusion is fixedly bonded to each of said lands by the fixedly bonding member (6) (fig 6d) (column 2 lines 20-60). The conductive protrusions are fixedly bonded conductive balls substantially equal in size to entire surfaces of the respective lands (fig 6d) (column 2 lines 20-60).

20. Nishiyana does not teach in this embodiment the relative size of the lands.

21. Nishiyana teaches that at least 3 lands are larger in area than other lands in fig. 1A.

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22. It would have been obvious to one of ordinary skill in the art to provide some lands that are larger than other lands in order to improve the surface mounting density.

23. Regarding claim 2.

24. Nishiyana teaches that each of the larger area lands is located at a position proximate to an external end of the substrate (fig 2a).

25. Regarding claim 3.

26. Nishiyana teaches that the conductive eballs are fixedly bonded to the entire surface of the respective lands by the fixedly bonding member having an amount proportional to an area of each of the lands (fig 6a)

27. Regarding claim 4.

28. Nishiyana teaches a maximum cross-sectional area of the conductive protrusion fixedly bonded to each of said larger are lands along a substrate surface is larger than a maximum cross sectional area of the conductive protrusions fixedly bonded to each of the other lands along the substrate surface (fig 4).

29. Regarding claim 5.

30. Nishiyana teaches a region in which each of the electrodes extending from each larger area land is connected to the resistive element while superimposing each other is present while avoiding a line that connects a shortest path between a center of each larger area land, and the electrode that is arranged at the other end and that pairs with said electrode (fig 6a).

31. Regarding claim 6.

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32. Nishyana teaches a size of the substrate in a direction of the longer side of the substrate is larger than a size of the substrate in a direction of a shorter side of the substrate on each larger area land (fig 4).

33. Regarding 7.

34. Nishyana teaches that each larger area land is present in each of four corners of a tetragonal substrate (fig 1a).

35. Regarding claim 8

36. Nishyana teaches that each larger area land is present at a position proximate to each of both external ends of the tetragonal substrate in a direction of the shorter side of the substrate (fig 1a)

37. Regarding claim 9

38. Nishyana teaches each larger area land (34) is one of a tetragon or an ellipse (fig 4).

39. Regarding claim 10.

40. Nishyana teaches a size of each larger area land in the direction of the longer side of the substrate is larger than a size of each larger area land in the direction of the shorter side of the substrate.

41. Regarding claim 13.

42. Nishyana teaches that the resistive elements or the dielectrics (5) that constitute the electronic component are substantially equal in shape and the distances between the adjacent resistive elements or dielectrics are substantially equal (fig 6a).

43. Regarding claim 14.



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44. Nishyana teaches that each larger area land has an entire surface covered with fixedly bonding material (6).

45. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiyama (US 6107685) as applied to claim 1 above and further in view of Fay (US 6780751).

46. Regarding claim 11.

47. Nishyama teaches element of the claimed invention above.

48. Nishyama does not teach the composition of the solder.

49. Fay teaches using a lead free copper containing solder.

50. It would have been obvious to one of ordinary skill in the art to use a lead free copper containing solder in order to improve conductivity while reducing contamination problems.

51. Regarding claim 12.

52. Nishyama teaches element of the claimed invention above.

53. Nishyama does not teach the composition of the solder.

54. Fay teaches using a lead free copper containing solder.

55. It would have been obvious to one of ordinary skill in the art to use a lead free copper containing solder in order to improve conductivity while reducing contamination problems.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID GOODWIN whose telephone number is

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(571)272-8451. The examiner can normally be reached on Monday through Friday, 9:00am through 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Loke can be reached on (571)272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Djg

/STEVEN LOKE/

Supervisory Patent Examiner, Art Unit 2818